

# VIRGINIA WILDLIFE

FEBRUARY 1959



VOLUME XX *Price 20 cents* NUMBER 2



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## Home of Nature's Workhorse Extraordinary, the Beaver

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Photo by Leonard Lee Rue III

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Beaver, established in Virginia through restocking, live in lodges built of sticks and mud.

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# VIRGINIA WILDLIFE

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond 13, Virginia

*A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting, Fishing and Outdoor Recreation in Virginia*

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### *Cover*

The great horned owl, shown on this month's cover, is one of the six common species of owls in Virginia. Also often seen in the Old Dominion are the screech owl, the barred owl, the barn owl, the long-eared owl and the short-eared owl. All are now protected by law.

Photo by T. W. Kent from National Audubon Society

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J. J. SHOMON, *Editor*  
S. P. DAVEY, *Managing Editor*  
M. R. CUTLER, *Associate Editor*  
L. G. KESTELOO, *Photography*  
FLORENCE BLANKENSHIP, *Circulation*

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## Dedicated Service

IT is not often that bouquets are thrown to organizations or individuals through the medium of these editorial pages, our feeling always being that commendations or rebukes, whichever is deserved, should come more directly from the people. At times, however, exceptions to the rule are justified. This month we'd like to throw two bouquets, one to an individual and one to an organization.

The individual is Dr. John McHugh, that capable and genial scientist and director who is leaving the Virginia Fisheries Laboratory of the Commission of Fisheries (a separate organization from the Commission of Game and Inland Fisheries) to assume greater responsibilities in fisheries research and management with the U. S. Fish and Wildlife Service. "Doc" McHugh paid us a courteous visit the other day, told us of his departure and had us meet his new capable replacement, Dr. William Hargis. Naturally we told "Doc" we were sorry to see such fine talent leave Virginia and wished him well.

We intended to write an editorial about Dr. McHugh, but since this has already been done by the Richmond News Leader, we could do no better than reprint it—and this we have done below.

As to the organization that deserves special mention, that is none other than the Izaak Walton League organization in Virginia. This dedicated group of sportsmen-conservationists, through their state division and twenty-odd chapters, have done much commendable work in basic conservation. Legislative-wise they, together with the Virginia Federation of Garden Clubs and some key industrialists, were responsible for pushing through Virginia's model Water Control Law. They have helped to clean up several of Virginia's foulest rivers. They have long fought for dog law divorcement from the game commission (thanks to much indefatigable work by J. H. Adams).

Just as significantly, the League has supported the Commis-

sion's long-range program under the former executive director, I. T. Quinn, and is backing our new executive director, Chester F. Phelps.

All this is admirable and has our respect. But the thing that makes us most grateful is the League's unqualified support of the Commission's basic wildlife conservation education program.

For nearly 12 years now the State Division has quietly but fervently supported our cooperative annual wildlife essay contest in the Virginia schools. To date, the League has contributed almost \$7,000 in prize money, on a matching basis with the Commission, for this contest. It has done grass roots work in the field to push this program through the various chapters. What's more it has thrown its moral and financial support behind the summer conservation natural resource training program for teachers, now going into its fourth year under the sponsorship of the Virginia Resource-Use Education Council. Six successful workshops for teachers have now been held; 3 at V.P.L., 2 at the College of William and Mary, and 1 at Virginia State College. Three more are planned for this coming summer. Some 250 teachers have now had an interesting basic course in natural resource conservation with all on-campus expenses paid by private donations from conservation organizations and individuals. The League has contributed its share to the financial support of this program. At the last State Division quarterly meeting the League voted money for the workshop program for 1959 and is getting committees appointed now to work on a better coordinated conservation education program through all of its chapters.

All this makes us exceedingly proud and grateful. More power to the League and to this kind of selfless undertaking in behalf of natural resource conservation in the Commonwealth.

—J. J. S.

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## Scientist on the Potomac

Dr. John L. McHugh's resignation as director of the Virginia Fisheries Laboratory comes at a time when the state can ill afford to lose his skill and experience. With the proposed Compact of 1958 inching toward approval by Maryland and Virginia legislators, a new era of good will may be opening on the Potomac. Not the least of Dr. McHugh's skills has been his ability to cooperate closely with his colleagues across the river.

Under the direction of this quiet, good-natured marine biologist, the laboratory at Gloucester Point has moved steadily ahead, adding greatly to the state's knowledge of its underwater wealth. During Dr. McHugh's eight-year tenure, the laboratory staff has doubled and facilities have been expanded. Most of these achievements are little known to Virginians who are acquainted with oysters on the half-shell only, but the men who take finfish and shellfish from Virginia waters appreciate scientific efforts to improve their fortunes.

Dr. McHugh has scrupulously avoided any entanglement in the political controversies surrounding the Potomac. Appropri-

ately, his chief concern has been improvement of the river as a natural resource. When the Bi-State Potomac River Commission met last spring at Annapolis, to hear scientific testimony, there was impressive unanimity between Dr. McHugh and Maryland scientists on desirable measures for replenishing the Potomac.

In the new atmosphere that seems likely to flow from approval of the Compact, such unanimity of aim and method among conservationists represents a sturdy foundation on which to build better understanding and mutual profit.

As Dr. McHugh prepares to assume his new post with the federal government, he carries with him the appreciation of well-informed Virginians for an unheralded job well done. It is unfortunate that he will not enjoy the approaching calm on the Potomac, a return to sanity that owes much to his unassuming insistence that the river breed wealth, not wrath.

—Editorial, Richmond News Leader  
January 1, 1959



U. S. Fish and Wildlife Service photo  
Wetlands attract thousands of ducks and geese. Coastal estuaries are also valuable fish spawning grounds. Dredging and filling of these areas for homesites and agricultural use destroys their wildlife value.

Where are we going with—

# Wetlands and Estuaries

By WALTER A. GRESH

**B**EFORE we know where we are going we must see where we have been. So let's look a few minutes at the road behind us. It is necessary to look just 20 years back, when administration and law enforcement were the primary activities of most of the State Game and Fish Departments. Technical people were absent, or few in numbers. Budgets generally were on a shoe-string basis. Wildlife and fishery habitat was more plentiful and, as is typical with our American way of life, the public attitude was casual.

Today things are different. The resources we manage are under pressure of the tremendous competitive demands for water and land use to serve an expanding economy and population. Following our American way of doing things, it will be left up to the public to decide whether the resources can survive.

To date the results from the public's interest look encouraging. In the past few years, we have witnessed an impressive amount of conservation legislation that has been adopted by the Federal and State Governments.

The Fish and Wildlife Act of 1956 is one of these accomplishments. Perhaps the greatest impact of this act in this region has been the increased activity in our estuarine and offshore fisheries by the Bureau of Com-

mercial Fisheries. In conjunction with most of our estuarine areas are the increasingly important coastal wetlands and marshes. Seventy-two percent of the over nine million coastal fish and saline wetland acres in the United States are located along our southeastern shores. Therefore, the future management and use of this nationally significant commercial and sport fisheries and wildlife area poses a complex problem.

We may be sure that the developers have or will have well-documented surveys of the areas in which they are interested. In June 1958, for instance, at the annual meeting of the American Society of Agricultural Engineers, one of the speakers pointed out that "hundreds of thousands of acres of reclaimable submerged lands border the United States coastline from New Jersey to Texas" and also reclaimable swamplands in other areas, including fully 159,000 acres of tidal flats and shallows in San Francisco Bay, *are now under study!*

In the past, the South Atlantic and Gulf coastal areas have by interstate compacts made headway on multiple State commercial fisheries problems.

The recent establishment of an Estuarine Committee in the Gulf States Marine Fisheries Commission will no doubt prove to be a forward step in fish and wildlife conservation in the Southeast. With only one exception, the committee is composed of a fisheries and wildlife

Address of Walter A. Gresh, Regional Director, Bureau of Sport Fisheries and Wildlife, Atlanta, Georgia, before the Southeastern Association of Game and Fish Commissioners, Louisville, Kentucky, on October 20, 1958.



technician from each State, along with representation from both Federal Bureaus. Maintaining an appropriated share of both fishery and wildlife resources in our estuarine and coastal marsh areas in advance of competitive public use presents a real challenge to this committee and the Marine Fisheries Commission, as well as all conservationists.

Another Federal act to meet a land-use problem was the amendment to the Duck Stamp Act, approved by the President on August 1, 1958. As most of you know, this provides that all Duck Stamp receipts, after the payment of printing and issuing expenses, be used for acquisition of wetlands and other wildlife areas. In addition it provides that under certain conditions up to 40 percent of a Federal refuge may be opened to public hunting.

In a short span of years, the need for hunting and fishing areas in the Southeast has required the acquisition and development of public use areas. Coordinated State and Federal efforts, strategic purchases, and public support will be the key to the future of this management effort.

The third, but by no means the least important of the Federal legislation that I want to mention is the new Coordination Act passed by the 85th Congress. Fred Seaton, Secretary of the Interior, has called this the most important conservation legislation in a quarter of a century, ranking in importance with the establishment of the Assistant Secretary for Fish and Wildlife.

The new act proclaims the place of fish and wildlife conservation in the water resource program of the Federal Government, and conservation is now, by law, on an equal plane with flood control and navigation in the Government's vast water resources program. The act provides authority to render assistance in the protection and development of fish and wildlife habitat in Federal water projects. It sets up a procedure for acquisition of land for fish and wildlife purposes. But let's not kid ourselves, the new Coordination Act is not a dreamboat, nor does it cure all fish and wildlife ills. It merely makes the provision for remedial action.

In the past to a large degree the inland water development projects have been on basin-wide or river drainage system levels, and for the most part the major studies have been made by our Branch of River Basins and your State Game and Fish Departments. We are, however, now faced with a problem which I feel is deserving of your attention.

Small watershed development projects, initiated by local sponsors and administered under the Soil Conservation Service, are rapidly increasing in numbers throughout this region. However, the net results of these projects in conversion of habitat, without the inclusion of fish and wildlife features, must be reviewed with apprehension. While Federal investigation of these projects is authorized under the Coordination Act, because of their number and the localized nature of their effects they will undoubtedly require increased attention by the States.

I want to mention briefly two other public laws



U. S. Soil Conservation Service photo  
Draglines are used to ditch wild marshlands so that they may be cropped and pastured.

enacted in the 85th Congress, these because of their indication of a trend in the recognition of fish and wildlife. They are Public Laws 850 and 843, which set up River Study Commissions to develop a multiple water use approach on river systems in Georgia, Alabama, Florida, South Carolina, and in Texas. In both instances, fish and wildlife are listed as a project purpose.

In addition to Federal legislation, there is one type of State legislation that has and will continue to play a big role for fish and wildlife. Water regulation laws are rapidly moving from West to East, and without provision for proper consideration of fish and wildlife in every act passed we may see their needs taken over by other water demands. In most States, however, there are indications that the public wants the consideration of these

Wetlands are being filled in and human homes built where once beaver and muskrat lodges stood and duck nests were made.

Commission photo by Shomon



resources.

In summary, it appears that we are presently in an unprecedented era of fish and wildlife conservation in the Southeast. Most States have firm biological, educational and law enforcement programs. Our task ahead will be increasingly a more difficult job of keeping the resource requirements abreast of the rapid conversions of land and water use. Therefore, intensive work with estuarine areas, wetland problems, and fitting of the resource into water development projects will pay rich dividends.

The number and magnitude of man-made changes in the estuaries, sloughs, marshes, lagoons, and swamps that fringe most of our South Atlantic and Gulf Coasts have been increasing steadily to meet the needs of our growing population and industry. These areas provide an essential and unique habitat for important game, sport fish, commercial fish and shellfish resources. They provide forage and cover for wild furbearers. They comprise the nursery ground for many kinds of fish and shellfish; they are the spawning grounds for some, the feeding grounds for others. Commercial or sport fish, such as menhaden, shad, striped bass, croakers, weakfish, and tarpon are reared there during their early stages. Shrimp, oysters and clams, which support important

fisheries, spend at least part of their lives in this inshore environment. The continued existence of these game, fish and shellfish resources depend on it.

Many of the estuarine changes have been relatively small dredging and filling operations. Considered one by one they are minor, but combined they are affecting in some degree a very large part of our coastal waters. These minor and major projects have been authorized because they would not interfere with navigation, but little thought has been given to their effects on our natural resources.

In the maritime States you are familiar with the history of coastal agriculture attempting to compete with inland production; the concentrated dispersion of water from lakes and rivers into the estuaries; the drainage of prime fish and game habitats; the undetermined effects upon productivity of our coastal areas along the intra-coastal waterway; or the invasion of salt water into once productive marshes and into ground water supplies.

I think we will all agree there are dangers ahead in the estuarine development. I believe you will also agree upon one premise—that considerably more biological information about estuaries and the things which live in them must be accumulated if intelligent solution to the problem is to be achieved.

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## The Muskrat—Little Brother of the Beaver

By ROBERTS MANN and DAVID H. THOMPSON

**I**N the Algonquin Indian languages he was called Musquash. The Hurons called him Ondatra and that has now been adopted as his scientific name. But the best Indian name of all meant "little brother of the beaver." He gnaws like a beaver, swims like a beaver, builds houses like a beaver, and looks like a little beaver. We call him muskrat because, also like the beaver, he has a pair of musk glands used to leave messages for others of his kind.

This is the most important furbearer to professional trappers and the American fur industry. More than any other wild animal, the muskrat converts millions of acres of cattail marshes and weedy shores into a crop of fur and flesh. To the farm boy with a few traps it means money in the pocket and experience in the skills of outdoor life. Our womenfolk prize rich warm coats of Hudson seal, the trade name for muskrat fur. The dark red meat has a wild game flavor. Muskrats appear on menus under such names as Marsh Rabbit and Maryland Terrapin.

Sometimes these animals become a pest, raiding corn fields and other farm crops near the water's edge, but they do the most damage to earthen dams, started by their burrows.

In cattail marshes and other shallow weedy waters, muskrats pile up great heaps of aquatic plants to build a house or lodge that has, inside, a warm living room

reached by an underwater entrance. From this home they range out to feed on the succulent roots and stems of such plants, even under thick ice in winter. However, in streams, farm ditches, and in many ponds and lakes—especially during summer—muskrats live in burrows dug deep in the banks.

The muskrat is a thickset short-legged animal with a foot-long body about the size of a small cat. The adults average two pounds in weight but, rarely, reach four. It has a 10-inch black scaly tail which is flattened vertically, unlike the broad paddle-like tail of a beaver. This tail is used as a rudder, or to scull slowly, or to smack the water as a danger signal. The fur is dark brown on its back, with very thick waterproof underfur and long reddish-brown guard hairs that glisten.

The "rat" has small beady eyes and ears which are nearly hidden in the dense fur. The hind feet are large, webbed between the toes, and used like the flippers worn by skin divers. While swimming, the small forepaws are folded underneath the chin. Like all rodents, it has a pair of chisel-teeth or incisors above and below, separated from the grinding teeth or molars by a gap, and its lips can be closed behind the chisel-teeth to keep water out of the mouth while gnawing beneath the surface.

A muskrat is clumsy and slow on land, seldom venturing away from water in daytime, but it is a courageous scrapper when attacked or cornered. Next to trappers, its greatest enemy is the mink which raids muskrat houses and burrows to eat their young.

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Conservation editor and senior naturalist for the Forest Preserve District of Cook County, Illinois.



## Law Enforcement Division Applauds As

# More Counties Take Over Dog Work

By WEBB MIDYETTE, *Chief  
Law Enforcement Division*

WHEN the Farmers Union under the leadership of Robert Hart, older brother of Mac D. Hart, "daddy" of the Virginia Game Commission, lobbied through the legislature the bill providing that dog laws be administered by the Game and Fish Department, little did its members realize that some day the Commission of Game and Inland Fisheries would be a two-million-dollar business with over 200 employees, 138 of them full-time protectors of wildlife by law known as game wardens.

At that time, the game warden received \$10 a month for nine months and \$50 for the other three, working full-time during the hunting season to check hunting, fishing and trapping licenses for the revenue.

Of course revenue is important, but today most hunters and fishermen have their licenses and are willing to pay for them because they are getting more for their money. In the old days the game and fish supply was dependent on mother nature without any assist. But today improvement of the natural game habitat is directed and administered by trained technicians together with the game wardens lending a practical hand to increase the game supply. The warden, then, has the job of not only protecting the supply and increase but educating and bringing about a better understanding with the public and the school children who will be the sportsmen of tomorrow.

In other words, game wardens have a full-time job which requires all of their time in game management restoration and protection. For that reason the legislature of 1958 passed a permissive law which made several changes in the dog laws under title 29-184.2: (1) The legislation took away the 15 percent which had been returnable to the Game Commission from the dog license sales income; (2) The appointing powers of the Commission (regarding the appointment of dog wardens) were given the judge of the circuit court; (3) The officer replacing the game warden would be known as dog warden and the county would assume full responsibility of the dog law enforcement; the game warden would then have no authority to enforce the dog law in such county adopting the law; (4) The dog warden is to be paid from the dog license receipts, and the game warden is then to be no longer supplemented as heretofore by the local authority in enforcing the dog law; (5) The Board of Supervisors may by ordinance increase the dog license not to exceed five dollars; (6) All other provisions of the dog law shall apply "as is."

This, you can see, will enable the game warden to be

a full-time conservation or game and fish protective officer.

We are glad to report that at least 42 of the 98 counties have already taken advantage of the legislation. We feel that such will bring about more efficiency to the enforcement of both the dog laws and the game and fish laws. Heretofore, the warden was what you might call a 50-50 expert, but now we will have two men doing a one-man, full-time job in each service—dog work and game and fish work. We feel that the local authorities as well as the Commonwealth will benefit by the change, and that the revenues will increase through efficiency of services, to pay for a better job all the way around.

\* \* \*

Here are two examples of what is happening on the local scene as dog law enforcement is taken over by the counties:

### Thirty Apply for Post as Local Dog Warden

Contrary to popular opinion, the position of dog catcher must be a popular one, especially in Halifax



Commission photo by Kesteloo  
J. J. Westbrook, Henrico County game warden, is relieved of this duty.  
Henrico County now employs a special dog warden.



though he is not bound to make the appointment from the list who have submitted applications.

—*South Boston News*  
September 25, 1958

\* \* \*

### Dog Warden Doing Landslide Trade

Freel Mullins of Clintwood is literally going to the dogs.

As the new dog warden of Dickenson County it's his job to do just that, and from the looks of the records in his office and the office of the county treasurer, he is doing the job admirably.

Mullins was appointed to the job nearly two months ago, and in all the history of the county there has never been before such a rush to buy dog tags. The county treasurer considers it nothing less than phenomenal. (But we feel it goes to show that efficiency can be had when a man does not serve two masters and/or gives 100 percent time to one job.—Midyette)

The position of dog warden was formerly a part of the duties of the county game warden. Development of a deer herd and a wild turkey flock in the rugged hills of the county, the stocking of trout streams and the amazing increase in the number of hunters and fishermen gave rise to problems that left him little time to check on the dogs.

Realizing this, the Board of Supervisors created the job of dog warden and appointed Mullins to fill the post. The board's explicit instructions were to see that all dogs were properly tagged and that sheep-killing canines, long a problem here, were taken care of.

Wide publicity was given to the new position, and to Mullins' statement that he intended to personally check every dog in the county to see that he was wearing a tag. That's when the rush to the treasurer's office began.

Mullins estimates there are more than 10,000 dogs in the county. In past years less than 4,000 tags have been purchased annually at the treasurer's office, and up to the February deadline, this year was no exception.

Although all the dogs were supposed to be tagged months ago, the treasurer's office is doing a land office business every week now. During the month of July, Mullins' first month in office, more than \$900 worth of dog tags was sold. County treasurer Bob Newberry says normal July dog tag receipts are less than \$50.

Mullins admits it's going to be a big job finding and examining more than 10,000 dogs. He's going about it, though, with great single-mindedness of purpose and the bulldog tenacity with which he is carrying out his orders has won the respect of dog owners.

Dog owners throughout the county have been very cooperative, Mullins said. So far he has had no serious trouble with delinquents. The dogs so far have been cooperative too. That is, all except two of the hundreds he has inspected.

These two bit him.

—*Bristol Herald Courier*  
August 31, 1958



Commission photo by Kesteloo

J. R. Bellamy, Chesterfield County warden, is glad that he is now a full-time game and fish law enforcement officer.

County.

Circuit court clerk H. M. Sizemore reported that his office had received some 30 applications for the job of county dog warden, with more certain to come before the end of the month.

The dog warden post was created by the Board of Supervisors at its September meeting when it took advantage of the state law allowing a county to hire a local dog warden with funds derived from the sale of dog licenses.

Beginning October 1, the game wardens will be relieved of all work with dogs and will be charged only with conservation and game law enforcement. All local and state dog laws will be enforced by the dog warden.

These laws include a county ordinance approved at the September meeting which requires that all dogs have a collar with a tag attached at all times except when hunting under supervision. The ordinance also makes it unlawful for any person to turn loose a dog on the public roads or elsewhere for the purpose of being relieved of such animal.

Animals without tags will be picked up by the warden and placed in the pound for a period of five days. If at the end of that time, the animal is not claimed by its owner, or if no one else wants to pay for vaccinating, a license and pound fees for the animal, the dog will be killed by the warden "in a humane manner."

The job as county warden carries a salary of \$3,200 per year plus seven cents per mile expense allowance for each mile the warden travels in the performance of his duties.

Under the law, appointment of the warden will be made by the circuit court judge, but the supervisors are expected to screen the applications and make a recommendation to the judge for the appointment. Presumably the judge will consider this recommendation, al-

# Poisonous Plants in Virginia

By A. B. MASSEY, *Department of Biology*  
*Virginia Polytechnic Institute*

Illustrations by J. W. Taylor

**N**UMEROUS poisonous plants grow wild over the country, yet plant poisoning in man through the digestive tract is infrequent. Children who have not learned to keep unwholesome things out of their mouths are the most frequent victims.

In earlier days, man more often turned to native plants for food. In the spring, untested shoots or tender plants were eaten at times with disastrous results. Poisonings have arisen from using young shoots of pokeweed for pot greens. Experience has taught us, however, that if these are cooked in two waters, pouring away the first, poisoning is unlikely.

John Smith, leader of the Jamestown Colony, writes of illness among the colonists from using Jimson-weed, also called Jamestown-weed (*Datura stramonium*), for greens. The Jimson-weed is of the nightshade family. A number of the species of this family, including belladonna and black nightshade, having been found to be poisonous, man became suspicious of all of them. Only a generation or so ago, the highly relished tomato of today was believed to be poisonous.

The use of native plant material for drugs, in the treatment of human ailments, was another source of plant poisoning in the earlier days. Poisoning developed from overdosing and from use of the wrong plant. Better knowledge of plants, their composition, and how they

may be improved for human use in supplying food and drugs has almost eliminated poisoning in man from plant material taken internally, though we do find idiosyncrasies of allergy. The purification and synthetic preparation of drugs has reduced the uncertainties in medicine.

More often, plant poisoning has reference to poisoning from contact with plants. Skin poisoning by contact with such plants as poison ivy, poison sumac or poison oak is common in adults and children.

Sensitiveness to these varies with individuals. The writer can handle poison ivy while a friend develops a severe blistering by coming within a foot or so of it. Poison ivy is a very common vine all over the state of Virginia. Poison oak, a low shrub, and poison sumac, a tall shrub, occur in the Piedmont and less frequently westward.

The pollen of various plants affects the respiratory organs of some people, developing asthmatic conditions and "summer colds." Ragweeds are a common source of such conditions. In spring and early summer the pollen of certain trees and grasses may be the source trouble.

An interesting case of pollen sensitiveness which puzzled the doctors is that of a lady who frequently lost her sight. She went blind after working in her garden

(Continued on page 22)



Hellebore



Nightshade



Poison Hemlock

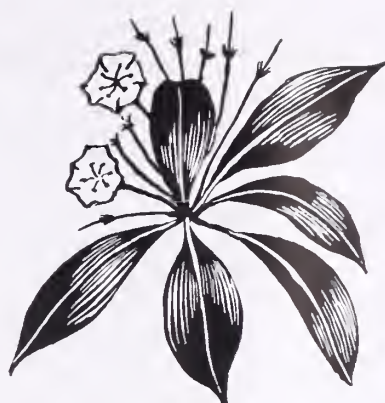
These plants and those illustrated on page 11 are but nine of 36 important poisonous plants listed by Professor Massey on pages 11 and 12. Children who have not learned to keep unwholesome things out of their mouths are the most frequent victims of plant poisoning.





Poisonous  
Berries

Pokeweed



Mountain Laurel



Poison Ivy



Poison Sumac



Jimson Weed



Buttercup

### Some Important Poisonous Plants and Their Properties\*

Name	Poisonous Principle	Important Phys. Action	Animals Poisoned. Plant Parts Poisonous
Boxwood <i>Buxus sempervirens</i>	Alkaloid (Buxine)	Irritant with nervous symptoms	Man and stock Leaves, twigs
Poison Hemlock <i>Conium maculatum</i>	Alkaloid (Coniine)	Heart (Depressant)	Man, stock, and poultry Plant, esp. seed, leaves
Larkspur <i>Delphinium tricornis</i>	Alkaloid	Heart (Aesthetic)	Cattle Plant, esp. seed
Yew <i>Taxus canadensis</i> and <i>spp.**</i>	Alkaloid (Taxine)	Heart (Depressant)	Man, stock, poultry Leaves and twigs
Yellow jasmine <i>Gelsemium sempervirens</i>	Alkaloid (Gelsemine)	Heart (Depressant)	Livestock, poultry Leaves, stem, seed
Death Camas <i>Zygadenus spp.</i>	Alkaloid (Zygadenine, etc.)	Heart (Depressant)	Sheep Leaves, seed, bulb
Lupine <i>Lupinus spp.</i>	Alkaloid (Spasmodic, etc.)	Central nervous system (Depressant)	Man and stock Leaves and roots
Rattlebox <i>Crotalaria sagittalis</i>	Alkaloid (Monocrotaline)	Inebriant	Livestock, poultry Leaves, stems, seed
Jimson Weed <i>Datura stramonium</i>	Alkaloid (Hyoscyamine)	Brain (Deliriant)	Man and stock Seed and leaves
Dutchmans Breeches <i>Dicentra cucullaris</i>	Alkaloid (Cucullarine)	Spinal Cord (Convulsive)	Cattle Plant, esp. tubers

Name	Poisonous Principle	Important Phys. Action	Animals Poisoned. Plant Parts Poisonous
Squirrel corn <i>Dicentra canadensis</i>	Alkaloid (Cucullarine)	Spinal Cord (Convulsive)	Cattle Plant, esp. tubers
Hellebore <i>Veratrum viride</i>	Alkaloid (Veratrin)	Irritant with nervous symptoms	Man, stock, poultry All parts, esp. root
Kentucky Coffee Tree <i>Gymnocladus dioica</i>	Alkaloid (Cytisin)	Irritant with nervous symptoms	Man, stock Leaves and fruit
Buckeye <i>Aesculus spp.</i>	Glucoside (Aesculin)	Irritant with nervous symptoms	Man, cattle, swine, horse Seed, young shoots
Corn Cockle <i>Argostemma githago</i>	Glucoside (Saponin)	Irritant with nervous symptoms	Man, stock, poultry Seed
Cocklebur <i>Xanthium spp.</i>	Phenol Glucoside (Xanthostrumarin)	Irritant with nervous symptoms	Swine, sheep, cattle Seed and seedlings
Sudan grass and Johnson grass <i>Sorghum spp.</i>	Cyanogenetic Glucoside (Dhurrin)	Spinal cord (Convulsive )	Cattle, sheep Leaves and stems
Wild Cherry <i>Prunus spp.</i>	Cyanogenetic Glucoside (Amygdalin)	Spinal cord (Convulsive)	Stock Leaves, twigs
Flax <i>Linum usitatissimum</i>	Cyanogenetic Glucoside (Phaseolunatin)	Nervous system (Convulsive)	Cattle, pigs Leaves, young seed
Arrow grass <i>Triglochin maritima</i>	Cyanogenetic Glucoside	Nervous system (Convulsive)	Cattle, sheep Leaves
Water Hemlock <i>Cicuta maculata</i>	Resinoid (Cicutoxin)	Brain and spinal cord (Convulsive)	Man and stock Roots
Mountain Laurel <i>Kalmia latifolia</i>	Resinoid	Heart (Depressant)	Sheep, cattle, horses Leaves and twigs
Rhododendron <i>Rhododendron maximum</i>	Resinoid	Heart (Depressant)	Sheep, cattle, horses Leaves and twigs
Stagger Bush <i>Leucothoe catesbaei</i>	Resinoid	Heart (Depressant)	Sheep Leaves and twigs
Male Berry <i>Lyonia ligustrina</i>	Resinoid	Heart (Depressant)	Sheep Leaves and twigs
Spurges <i>Euphorbia spp.</i>	Phenolic	Irritant	Man and stock Flowers, seed, etc.
Sneczeweed <i>Helenium autumnale</i>	Phenolic	Irritant	Sheep, cattle, horses Flowers
Bitterweed <i>Helenium tenuifolium</i>	Phenolic	Irritant	Horse, mule Flowers and leaves
Poison Ivy <i>Rhus toxicodendron</i>	Phenolic (Urushiol)	Irritant	Man All parts
Poison Sumac <i>Rhus vernix</i>	Phenolic (Urushiol)	Irritant	Man All parts
Nightshade <i>Solanum nigrum</i>	Solanine	Brain (Deliriant)	General Green fruit, leaves
Castor Bean <i>Ricinus communis</i>	Phytotoxalbumin (Ricin)	Irritant with nervous symptoms	Man, stock, poultry Seed and leaves
Black Locust <i>Robinia pseudo-acacia</i>	Phytotoxalbumin (Robin)	Brain (Deliriant)	Man, stock All parts, esp. inner bark
Buttercup <i>Ranunculus acris</i>	Higher Alcohol (Anemamol)	Heart	Man, cattle, sheep All parts
White Snakeroot <i>Eupatorium urticaefolium</i>	Higher Alcohol (Trematol)	Heart (Aesthenic)	Man, cattle, sheep, stock All parts
Pokeweed <i>Phytolacca americana</i>	Alcoholic extract	Brain Inebriant	Man Root, young shoots, berries

\*From paper by the writer in Merck Report 50(3):24-28.

\*\*spp. = other species of same genus or two or more species of the genus named.



## VIRGINIA WILDLIFE

# CONSERVATIONGRAM

### Commission Activities and Late Wildlife News . . . At A Glance

VIRGINIA DEER HARVEST REACHES NEW HIGH. A record state-wide 1958-59 deer kill of 25,700 is assured and late reports may push this figure over 26,000, according to the number of big game tags being returned to the Commission. The western season resulted in a harvest of over 13,500 deer and the eastern counties apparently took between 12,000 and 13,000. Of the grand total approximately 12,000 will be doe and young antlerless bucks.

DEER SEASON WEST OF THE BLUE RIDGE NETS RECORD HARVEST. Big game tags returned to the Virginia Game Commission indicate that the total legal deer harvest in counties west of the Blue Ridge during the November 17-22, 1958, season reached an all-time record high of 13,538 animals, according to Jack V. Gwynn, game research biologist. Previous high harvest was 11,450, taken in 1956; the 1957 kill figure was 10,865. The 1958 western bow season accounted for 173 deer (81 bucks, 92 doe), an increase of 14 over the 1957 bow kill of 1959. Sixty percent of the 13,538 deer killed were taken on the last two days of the season when hunters were allowed to take antlerless deer in 15 northwestern counties. Approximately 36 percent of the total number of deer killed west of the Blue Ridge were females. High temperatures, fog and rain hindered hunters during the opening days of the season, but the weather turned cooler and ideal for hunting during the final two days. The total number of sportsmen hunting deer west of the Blue Ridge in 1958 (80,900) was about the same as 1956 and 1957. The 15 northwestern counties, all of which had two "hunters' choice" days, attracted nine percent more hunters in 1958, 63,000, than they did in 1957 when 58,000 gunners hunted the area. Hunting pressure decreased by 10 percent, from 20,000 in 1957 to 17,900 in 1958, in the 12 southwestern counties where eight counties, which had one "hunters' choice" day in 1957, reverted to the policy of their four sister counties, and all 12 had "bucks only" seasons. This was the first year since 1953 that some sort of antlerless season was not available in one or more of the 12 southwestern counties. Hunter success figures indicate that one out of every six or seven sportsmen that hunted west of the Blue Ridge brought home venison. Commission biologists believe that 18,000 to 20,000 deer can be safely harvested each year in the western counties. They feel that more "any deer" seasons are needed to allow the taking of surplus deer which are now wasted on ranges where high deer populations have inadequate winter food supplies.

STOCKING OF OVER 500,000 HATCHERY TROUT UNDERWAY. Virginia streams are now receiving the first fish to be released under the 1959 trout stocking program of the Virginia Commission of Game and Inland Fisheries. G. W. Buller, fish division chief, announced that 141 trout streams and three lakes will be stocked this winter and spring. Over 500,000 trout from state fish hatcheries are expected to be released in waters open to public fishing. The stocking will continue through March, with the larger and more heavily fished streams receiving additional trout in late May and early June. Brook trout and rainbow trout will be released in approximately equal numbers. Three-quarters of the stocked fish will be two years old, with the rest being yearlings. The 1959 trout season will open at noon on April 18 and will continue through December 31.

TEAMWORK AT CAMP PICKETT CONTINUES TO PAY DIVIDENDS. Thanks to outstanding cooperation by the Department of the Army, Virginia hunters enjoyed their most successful season to date on Camp Pickett in south-central Virginia. John B. Redd, district game biologist, reports that as of January 5, 6,046 hunters had bagged 117 deer, three turkey, 1,433 quail, 2,443 rabbit, 509 squirrel, 14 raccoon, 157 duck, five fox and 10 snipe on the 47,000-acre public hunting area.

LAST CALL FOR WILDLIFE ESSAYS. The deadline for Virginia's school children in grades five through 12 to enter the Twelfth Annual Wildlife Essay Contest sponsored by the Virginia Game Commission and the Virginia Division of the Izaak Walton League is February 28. Cash prizes totalling \$1800.00 await winners, who must have official entry cards submitted by their school principals to the Commission. Over 300 schools had entered the contest as of early January.





Over 1,500 Virginians and 40 out-of-staters purchased licenses to hunt elk in four Virginia counties last fall. Here, J. V. Shockley of Bland, Va., and Eddie Buchanan of Pound, Va., clean their rifles before taking to the trail.



Brushy Mountain, shown from Route 42, is in the heart of Virginia's elk range.

## Rare Elk Hunt

Western big-game hunters had nothing on Virginians last hunt. A bull elk taken in Giles County November 17 and 18, 1958. These were the first elk taken in the state since 1944. Monday, November 17, was the big day for some 100 hunters. The Virginia Department of Game Management Unit on the Jefferson National Forest. By nightfall over 500 elk had been killed. Five checking stations on the area. Game biologists, under the direction of Dr. J. B. Collins, examined the teeth and took blood samples for study. Law enforcement officers checked licenses and kills. James Bruce of Bastian made the first kill. William Winchester. Hayden Blankenship of Narrows took one of the largest, a 15-year-old William Bartley from Radford. Two men claimed a 1,000-pound elk. Grenier from Vienna hit the bull first; William McAbee of Alexandria. A 900-pound elk was bagged by Clarence Robertson of Narrows. Other hunters included Bock of Blacksburg, Worley A. Mullens of Wise, Walter Keene of

James Crigg

Text and photos



Tracking a big bull elk are Guy Huff and Stanley Quesenberry of Dugspur, Virginia. The Dismal—No Business area was covered with elk tracks but the animals themselves kept under cover.

Burtrend Bogg and Ray Buchanan wait for a bull elk to pass their stand. Most of the elk were shot by waiting hunters.



"Hold that," said Donald Bruce of Bastian as he shot a picture of his cousin James. He used a 270 Winchester.







Inset: U. S. Fish and Wildlife Service photo of elk such as that shown in the inset were fair game during the two-day hunt.

## -Virginia Style

season. If you don't believe it, ask the men who bagged the 12 huge animals were the first legal elk kills in the Commonwealth hunters who scouted the 22,000-acre Dismal-No Business Game first day, five elk and some 40 buck deer had been tagged at the of biologist supervisor John McLaughlin, aged many of the elk by officers under the direction of Ben Bird and Giles County warden ne of the early kills on Brushy Mountain at 8:15 a.m. using a 270 -point bull elk weighing over 900 pounds. Youngest trophy collector endous 12-point bull shot in Sugar Run on the second day. Robert , Grenier's hunting partner, brought the animal down. Another ccessful elk hunters were Raymond E. Combs of Baywood, H. B. ands, H. K. Fletcher of St. Paul, W. B. Rasnaki of Narrows and Wytheville.

George H. Harrison

Robert Bruce with his trophy elk. James, a state policeman stationed at Grundy, ng down the 10-pointer.



Food seems to taste better when it's cooked outdoors. J. C. Hunsaker of Pound, Va., and Norris Bolling of Wise, Va., cook their breakfast before starting after the elk. No fires damaged the forested area despite the number of campers in the woods.



Game biologist supervisor John H. McLaughlin attaches a big game tag to Bruce's elk, which was then rushed to a nearby freezer plant to prevent spoilage in the 70-degree heat.

At checking stations, elk were aged by teeth examination and blood samples were taken for study.





# Operation BEAR CUB

By ALLEN R. STICKLEY, JR.

CHARLIE was smugly sitting on the first limb of a big oak on the V.P.I. campus. No amount of pleading or scolding would bring him down and, in fact, one could almost imagine he was basking in the attention of the 25 or more college girls gathered around to watch the proceedings. So there was nothing for the writer to do but to throw a rope over that first branch, secure it and climb up after the little black bear cub. This was done, and as Charlie's pursuer went up one side of the tree, Charlie came down the other—much to the delight of the crowd. As soon as the cub hit the ground he took off running, but to no avail. He was soon collared and given his come-uppance!

To the casual observer this might be a rather unusual incident, but to personnel of the Virginia Cooperative Wildlife Research Unit at Blacksburg it was all in a day's work. Charlie and his two sisters, Ginny and Brownie, were the central figures in a bear growth study financed by the Virginia Commission of Game and Inland Fisheries and carried out by the wildlife unit.

These cubs were born during the middle of January 1956 while their mother was denning-up in a scooped-out depression under a fallen log on Wright Mountain in Nelson County. This date is about average for bear cubs, but they may be born anytime from late December to early March. Three in a litter, contrary to popular opinion, is quite common. Two is probably the usual number since a study of 16 female reproductive tracts collected in Virginia over the past several years has revealed that the average litter number here is approximately 2.3 cubs. Of course, extremes are found among Virginia bears and elsewhere, varying from one, also quite common, up to as many as six.

Cubs are extremely small and helpless when born. They are only about eight inches long and weigh from nine to 12 ounces. This is about 1/200 to 1/250 of the mother's weight. (A human baby is about 1/20 of the mother's weight.) Cubs are born hairless and blind. The eyes open at about 40 days but even then do not seem to function well for several months. A bear's eyesight even as an adult is never good and a cub's eyesight is even poorer. In April, Charlie, Ginny and Brownie would follow a person about if they could stay fairly close to him. But as soon as the individual got more than 15 feet away, the cubs would sit down and begin looking around blankly!

Mr. Stickley is now a game research biologist with the Virginia Commission of Game and Inland Fisheries, in charge of the Commission's bear research program.

To keep accurate growth records on the cubs, the daily weight of little furry animals was recorded by placing them one at a time on a pair of scales. They soon learned that they were to stay on the scales with no funny business allowed. (There were exceptions.) They became so accustomed to the weighing pan after a while that their teeth could be examined for age studies while they sat there! This weighing was a daily routine until July 14, the day before the cubs were to be transferred to the Fur Parade Game Farm near New Market.

*... the dogs wound up  
chasing the cubs  
up a tree!*





Charlie, at the time of the transfer to New Market, had reached the point where he was a very inconvenient package to lift four feet off the floor and place on the scales. When placed on the instrument the last day, he immediately shifted his 48-pound bulk and tumbled nonchalantly off! That was the last time Charlie was ever boosted up there—he was just too much bear, and the use of another technique became necessary.

As indicated by Charlie's example, the cubs put on weight at a rapid pace, and with little wonder, since they were fed to capacity nearly every meal. When first obtained on March 30, Charlie weighed 5.5 pounds, Ginny 5.2, and Brownie 4.7; and when weighed in November before the hunting season, Charlie weighed 86 pounds, Ginny 59, and Brownie 62.5. Only one record was ever found of a cub weighing more than Charlie—a California male cub which weighed 120 pounds in November! Even as cubs, males generally follow true to form in being larger than females. Any black bear over 400 pounds in weight is almost sure to be a male. In fact, most Virginia bears weighing 175 pounds or less are either juveniles or females.

The cubs continued to gain weight through December 15, but lost weight the following month. This appeared to be the result of denning-up tendencies, a condition in which bears seem to eat less and be less active. However, by February they had gained their weight back and had added more flesh. Charlie weighed 100 pounds on February 16.

As a part of the growth study, nine body measurements were taken weekly on the cubs until the time they were transferred away from Blacksburg. Since the cubs were not anesthetized at any time during these operations, bear psychology played an important role. Even when they were small, the job varied from simple to next to impossible, depending on the mood of the cub involved. Conditions finally reached the point where bribery in the form of honey or peach preserves was the only resort. This method worked fairly well since the cub usually became so absorbed in licking the sweets off the spoon that almost any measurement could be made!

Dental X-rays and weekly tooth examinations traced the course of tooth development in the cubs. When first obtained on March 30, the cubs already had the temporary teeth in place. In the middle of June, the first permanent teeth (incisors) began breaking through the gums. By the middle of December—bear hunting season—all the permanent teeth were in place with the exception of the canines which in most cases had just broken through. By the middle of February, the canines were half through. This, incidentally, is a sure way to tell a cub from an adult. The cub will still have the milk teeth or else have the permanent canines or "tusks" only partially erupted, whereas an adult will have the permanent canines completely developed.

In the process of tooth examination, as mentioned earlier, until the cubs were moved to the game farm, the teeth were checked while the bears sat on the weighing

scales. The mouths had to be pried open, of course, in order to see anything; but generally the cubs took it philosophically, offering only passive resistance. However, other steps had to be taken when X-raying was involved, for here the animals had to be completely still—an improbable situation for a growing cub. To quiet the cubs, they had to be anesthetized by means of the sleep-inducing drug Nembutal. At first the Nembutal was administered orally by putting a pill in the mouth and forcing the jaws shut; but this gradually became somewhat hazardous with the increase in tooth and jaw size, and the method shifted from one of disguising the pill in a spoonful of honey (they never touched honey after that) to finally administering the drug by means of a needle injected into the body cavity. If a bear got the full dose, hypnotic sleep occurred in about five minutes, and continued for three or four hours. The latter method worked fine until the last time the bears were examined in February 1957. By this time, the cubs knew what the needle meant and they wanted no association with it. Force—a little tricky at this point—had to be applied, and a measurement of two holes in the writer's jacket sleeve will give the exact distance between Brownie's canine teeth at that time.

Throughout the study the cubs showed a high degree of intelligence, marred only by occasional instances in which indiscretion resulted in minor disasters. One such disaster occurred on a day when the cubs were being exercised near a small stream which was completely choked in spots by dense beds of algae. Brownie evidently thought this thick green stuff was solid ground and jumped gaily over the bank only to land with a sickening splash in the ooze! Greatly surprised and soundly subdued, she scrambled out, looking for all the world like a little wet rat.

Another instance occurred when the cubs first saw dogs. These particular dogs were two big friendly ones almost the size of great Danes. The cubs immediately began to chase them but the more they thought about it, the more they realized that this just wasn't the natural thing to do and they finally reversed their field with the result that the dogs wound up chasing the cubs up a tree! And this must have really shaken their confidence, for a week later they were all three put up a tree by a little black scottie!

The cubs were inherently inquisitive. Whenever a cub would get out of his pen and loose in the room where they were kept, it immediately started climbing over jars, boxes and tables, scattering things everywhere and reducing the room to a well-turned pile of rubble. Often when someone tried to take a picture of them, the cubs would come galloping up to the camera to investigate it! They weren't adverse to shinnying up a leg to get a closer look either. Quite frequently the photographer would have made at least as interesting a subject at this point!

All in all, raising three bear cubs is quite an experience. . . but a fellow would have to think hard about doing it twice.

Rough fish elimination should bring

# Better Fishing in Lake Albemarle

By JACK SHERIDAN

*Fish Biologist*

Commission photos by Kesteloo

LAKE ALBEMARLE, a 55-acre lake located about 15 miles west of Charlottesville, Virginia, was drained October 7, 1958, by personnel of the Virginia Game Commission's fish division. Tucked away in a valley of Albemarle County beneath the Blue Ridge, Lake Albemarle was another victim of "poor fishingitis." This chronic complaint brought a contingent of workers to the scene with tanks, tubs, buckets, nets, pumps and other paraphernalia.

The surface area of the lake was reduced to about an acre by opening the valve in the tower, which allowed the water to flow from the bottom of the lake. Fish were then permitted to come through the pipe in the dam by opening the valve. They were corralled in a wire box, from which they were dipped and put into tubs. The tubs were carried to a table where the fish were sorted into species and size groups.

Those fish qualifying for restocking were placed in the pool below the spillway to be held for return to the lake. The remainder were separated as to species and size groups, weighed and disposed of.

When the last man had been spined by a bullhead and the last fish removed from the scene, the next phase of the operation began.

The valve in the tower was closed and rotenone was applied to the stream feeding the lake and to its

tributaries. Potholes in the lake were drained down and treated to complete this job of removing unwanted species from the lake and its headwaters.

The water in the lake was treated with a chemical to neutralize the poison, a suffocant, and was allowed to build up for five days. The pool of water below the spillway was drawn down by the use of an irrigation pump. The fish were seined out, sorted, measured, weighed and returned to the lake.

The following is a breakdown of the fish returned to the lake:

Species	No.	Lbs.
Bass, Largemouth	871	387.2
Bluegill		1,036.4
Catfish, Channel	5	3.4
Crappie		489.3
Pickrel, Chain	2	6.0
Pumpkinseed		5.7
Total pounds returned to lake		1,928.0

The two largest bass returned were 24 inches long and weighed 9.3 pounds each. Some 44 other bass ranging from 16 to 23 inches were also returned. One



War-surplus neoprene tanks (3,000-gallon capacity) are used to temporarily hold fish to be returned. Sorting tables are shown in foreground.



Some of the first fish which have come through the drain pipe are dipped out of drawdown box below dam.





Commission personnel sort and measure fish, separating unwanted fish, such as bullheads, which made up over 36 percent of the entire fish population by weight.



Biologist Nat Bowman shows division chief G. W. Buller examples of prime offenders, bullheads and suckers.



Game fish, after sorting, were returned to holding pool.



This big bass gets special treatment. The two largest bass weighed over nine pounds each.

crappie weighing 2.3 pounds was returned to the lake to make some fisherman happy.

These poundages plus those of the fish removed give the following total production figure for Lake Albemarle:

Species	Lbs.
Bass, Largemouth	496.2
Bluegill	1,645.2
Bullhead	1,726.1
Catfish, Channel	17.6
Crappie	728.0
Golden Shiner	38.3
Pickereel, Chain	6.0
Pumpkinseed	66.3
Sucker, white	97.0
<b>Total Pounds</b>	<b>4,820.7</b>

This total production figure of 4,820.7 pounds divided by 55 acres of water gives a total of 87.6 pounds per acre—a rather low figure but legitimate for unfertilized bodies of water.

A large percentage of the fish were of catchable size but more than one-third of the total weight of fishes

was made up of bullheads 8 to 10 inches long. These bullheads, along with the other non-game fish, were taken from the lake. The elimination of this segment of the population will reduce the competition for food among the game fish and will result in more bluegill, crappie and bass being landed by the anglers.

The lake was closed to fishing until the water built up again. Bass will be stocked this spring in an effort to augment the predator population.

The bottom of Lake Albemarle contained several areas where the original trees had been left standing. Clearing these from the lake bed and from spots along the shore and dam would be a wonderful project for local sportsmen's groups to take on.

As time goes on, more of these lakes will be drained around the state, thus giving sportsmen an opportunity to lend a helping hand to the program to provide more and better places to fish. To the wardens, game division personnel and local citizens who helped on the Lake Albemarle job, we say many thanks for the hours of back-breaking work and hearty cooperation you gave the fish division technicians.

# Wildlife—A Land Crop

By JOE LINDUSKA

AS recently as 25 years ago, management of wildlife was an easy, matter-of-fact activity. Everyone understood the problems and everyone agreed on the solutions. Relatively speaking, we had game shortages a generation back, but, happily, we had easy answers. When quail numbers dropped off, a common diagnosis was that foxes, owls and weasels were getting more than their share. The obvious thing to do was to control them. And the bounty system was one simple means of doing the job. Or so we thought.—Pheasants in short supply? Why depend on nature when you could eliminate all guess-work in the fool-proof surroundings of a game-farm?

Yes, it was much simpler in the old days. Too bad the obvious, head-on expedients didn't work. But the fact is they didn't. Not only here in Virginia did they fail, but in the other 47 states as well. And we did give them fair trial, a good many millions of dollars worth.

Today we know almost as much about things that won't work as we do about things that will. But in spite of a continuing ignorance about some details of fish and game management, there is a growing awareness of one major truth: *Wildlife is a product of the soil.* And whatever refinements of management we may apply for wildlife, our first consideration must be for the land, the raw stuff which is the basis for all living things.

In accepting that axiom, modern-day managers of wildlife are a little in the position of the harassed husband who watched his mother-in-law plummeting over a cliff in his new Cadillac. They have mixed emotions; they are faced with a relatively new concept which offers great opportunities on the one hand but presents some basic problems on the other.

The principal advantage is that land-changes for wildlife broaden the productive base of any given area. And food and cover plantings to achieve this end have a degree of permanence about them. Once accomplished their useful life can be expected to extend over a period of years. This being the case we have an element of economic reality in programs that manage wildlife by altering the landscape.

This is in contrast to some of the "practical" methods of a few years ago, of which predator control is an example. Most people will accept the fact that predators can be too prosperous for the good of some game species. And there is no question but that some might fare better with a reduction of their predatory enemies. The problem is that it cannot be done economically. There is nothing permanent about control of predators. It's a blackmailing program that must be carried on aggressively year after year.

The same dollar limitations are present in others of the so-called "practical" and "intensive" forms of management. They may have a place on the Scottish grouse moors and private preserves but not in state-wide programs dependent upon limited license monies. Ours must be an extensive program and adding habitat offers the most practical means of providing more game for more sportsmen.

It's evident enough that soil is the basic material in the production of all wildlife. And, other things being equal, it's true likewise that our more fertile soils are more productive of all things—wildlife as well as domestic crops and livestock. Consequently, what's happening to the soils of the country is of concern to the millions interested in wildlife. And what's happening is not good.

According to some experts, erosion already has accounted for one-fifth of our total tillable acres. While progress is being made in reducing the rate of soil loss our productive lands are still being destroyed at the rate of a half million acres a year. Country-wide this is the equivalent of losing each year about 2500 farms the size of the average Virginia farm.

And that's not all. If it has occurred to you that a lot of land has been taken over by urban developments—you're right. A lot has. Last year it amounted to a million and a quarter acres of our best farm lands. Since the start of World War II it adds up to one twentieth of our crop lands—the equal of 250,000 of our better farms.

Furthermore, the end's not in sight. Today we're a population of 172 million. Seventeen years from now, in 1975, we will number 231 million. Providing these new millions with the accessories of civilization—super highways, factories, houses and schools—will take another 27 million acres.

It should be no secret, therefore, that the nation's soil is the most precious of our natural resources. How we treat it from here on out will determine not only how well we eat, but how well we live in general. And that includes hunting and fishing.

Relerring to fish and game, it's a happy fact that many practices designed primarily to preserve land in a healthy state, in themselves, are favorable to wildlife. Modern-day agriculture, as it's being advocated by various units of Federal and State Government, is a case in point. Enlightened farming today looks to the future. It aims to avoid erosion, restore and maintain fertility and preserve ground moisture. It aims to build and nurture the soil, not to wear it out and destroy it; to conserve its high productivity not to exploit it. And the techniques employed to gain these ends are favorable to wildlife.

Upwards of 85 percent of our hunting lands are pri-

Dr. Linduska is director of wildlife management for the Remington Farms in Chestertown, Maryland. He was formerly a research biologist with the United States Fish and Wildlife Service, Washington, D. C.



vately owned or controlled, so we have more than a passing interest in how they are managed. Currently we are in a revolutionary period as far as developments on many such areas are concerned and the future augurs well for wildlife.

Take, for instance, the Soil Bank. The Conservation Reserve provision of this Federal Act offers financial inducement to farmers to retire portions of their farm from active tillage. Replacement practices include many favorable to wildlife, such as, cover plantings for game, shallow water impoundments for waterfowl and furbearers, and the construction of farm fish ponds. Nationally, 10 million acres are under contract in the Conservation Reserve and it is anticipated that up to 12 million acres will be added in the coming year.

So great is the wildlife potential that game departments in several states have assigned full-time personnel to work with farmers and Soil Bank officials in promoting the program. And there's room for sportsmen participation, too. Under new regulations farmers may accept assistance in labor, planting materials or other aids to wildlife conservation without equivalent deductions from the 80 percent reimbursement costs offered by the Federal Government. Of course, farmers are paid an annual rental on acreage so retired from crop production.

Old timers will recall the "patch-farming" days as being the golden era for upland game. But with mechanization came a radical conversion to ultra-clean farming. It has been rough on wildlife. But "planned confusion" on the farm now is coming into vogue because of its values in saving soil, preserving moisture and simplifying maintenance. And game will prosper with it. Hedgerows, living fences, field-border plantings and

farm ponds aplenty, are appearing on the landscape. There'll be more of it all with the Soil Bank program now gaining momentum.

Look, too, at the Federal Interstate Highway program for its effects on wildlife. It'll cost us many an acre of precious land. But with proper coordination the prospects are bright for adding tremendously to wildlife habitat.

Huge earth fills are an integral part of modern highway design, and many a stream and creek will be spanned by this means. How frequently might these serve the additional purpose of an impoundment for a pond, or even a lake of hundreds of acres?

A number of states already have taken advantage of road building to obtain useful impoundments. Delaware's Thousand Acre Marsh was a by-product of state road construction, and the ducks love it. As many as 50,000, at one time, have been seen resting and feeding in the area. Other states have coordinated their road building programs and obtained a number of lakes and ponds varying in size from a few to over a thousand acres.

It's not often that sportsmen's dollars will buy so much for so little. With highway funds underwriting impoundment costs, the additional expenditures leading to a water area may only involve a control structure and riprapping the water line. And more than the worthwhile returns to hunters and fishermen, roadside lakes will appear in pleasing contrast to billboards and raw gullies.

Last fall the International Association of Game, Fish and Conservation Commissioners passed a resolution calling for the integration of fish and wildlife habitat development with national highway construction. State

Permanent field borders of bicolor and sericea lespedeza feed quail better than temporary field crops. Fish and game can be managed for greater yields per unit of area.

Illustration by Wallace Hughes from Davison's Bobwhites on the Rise. Courtesy Charles Scribner's Sons.







U. S. Soil Conservation Service photo



Commission photo by Cutler

Illustration at left shows how sericea borders provide food and cover near fields covered with snow. At right, Commission game biologist Howard Sheldon stands waist-deep in an annual game bird mixture planting consisting of Korean lespedeza, rape, milo, millet, buckwheat, peas and soybeans.

conservation departments are aware of the bonanza possibilities which the massive road program offers for wildlife. The interested citizenry can help insure that proper recognition will be given to recreational values by reminding legislators of the multipurpose potential in highway construction.

One thing is sure: our land area is shrinking—relatively. Today we have something less than 12 acres per person. It will be almost a third less in another 15 years. Competition for the land is getting tougher. But in this

day of intense, hurried living recreational values are enjoying a higher priority than they used to get. As products of the land, fish and game can be managed for greater yields per unit of area. And opportunities at the moment are more promising than in any former period. The technical know-how in wildlife management is by no means perfected. But we know well enough the things that will work and those that won't. If we take full advantage of big things now brewing, better hunting and fishing will be a prospect of the near future.

## POISONOUS PLANTS IN VIRGINIA

(Continued from page 10)

where she had plants of snow-on-the-mountain. Pollen from these plants getting into her eyes was found to be the cause of her trouble.

The stinging nettles cause severe irritation of the skin of people who handle them. The fine sharp spines on the plants pierce the skin and inject an irritating substance into the skin.

Some ornamental plants in the home should be avoided if young children have access to them. The so-called "California fern" is a poison hemlock which is highly poisonous if taken into the mouth. Likewise, cypress spurge, Jerusalem cherry with the attractive green and red berries, the leaves of the box bush and the yew are dangerous to young children who are inclined to promiscuous eating.

Some of the more important poisonous plants are listed in the table on pages 11 and 12. All are poisonous to man, but an adult would eat very few, if any, of them.

Reprints of this article are available from the Commission on request.

\* \* \*

## Virginia Top Deer Antler State In Big Game Record Book

Virginia leads all the States in the number of outstanding deer heads listed in the new edition of "Records of North American Big Game" just published by the Boone and Crockett Club.

Twenty-two of the 286 whitetail heads listed in this 264 page book were bagged in Virginia, and all were

measured at the State's annual big game trophy contests.

Authorities believe that the limestone belts which run through Virginia create an antler-building soil condition and is responsible for the high proportion of big deer heads in the Old Dominion.

States with the next best representations are: Texas, with 16 heads; Washington and Ohio with 10 each; Minnesota, nine; New York, eight; Wyoming, seven; and Montana, six. Maine, Michigan, Pennsylvania and Wisconsin, highly publicized deer States, rate only four heads each in the record book. Maryland has two heads listed, while West Virginia and North Carolina have one each in the book.

Two Virginia black bear are also listed in the record book, one taken in the Dismal Swamp in 1924, the other a Nelson County bruin bagged in 1955.

Every October the Virginia Peninsula Sportsmen's Association of Newport News holds a contest for those trophy deer and bear bagged the previous season east of the Blue Ridge. Bear are judged on the size of head measurements while deer antlers are separated into point class and then scored by a modified Boone and Crockett system. A winner is picked for each class and prizes are provided.

Also in October, a similar contest is held at Harrisonburg for those trophies taken west of the Blue Ridge. Here, winners are selected and prizes are provided by the local sponsors, the Rockingham Game and Fish Protective Association. Then at the regional contest, three state winners are selected for each class, and prizes are provided. The Virginia Game Commission awards silver bowls for the best deer trophy and the best deer head.





## *The Crow*

By DR. J. J. MURRAY  
*Lexington, Virginia*



*"He will be a wild man; his hand will be against every man, and every man's hand against him."*

EVERYONE knows the crow. Most people must pay an unwilling tribute to his cunning, yet few people like him. I do. One of the pleasant associations with our family cabin on the Maury River up in Rockbridge is the sound of the wild "cawing" in the early morning. It means that a pack of crows is hounding one of the great horned owls down at the mouth of Whistle Creek, or gathering in the trees at the head of our ravine to see why the old gray fox has come out of his den in daylight. It is raucous music, but there are times when I would not exchange it for a symphony.

The crow is like Ishmael in *Genesis*, of whom the angel warned his mother Hagar, "He will be a wild man; his hand will be against every man, and every man's hand against him." In his years of outlawry the crow has learned how to take care of himself. For hawks and owls, and for most large birds, we who like all natural things must plead. It is not quite so necessary to make a case for the crow. The enmity of man against him may to a large degree be unfair; certainly crow shoots are abominable things; but the crow does not have to beg for justice. He can look out for himself, even when his persecutors with shot gun and dynamite seek his destruction.

The crow shares with his other corvine kin, the blue jay and the raven, a kind of fierce sagacity. He is the shrewdest of all our common birds. If he is to live at all, he has to learn early how far a shot gun will carry and how near he dare let a man come. He learns while still young when it is safe to go into the fields and when

a scare-crow is only a scare-crow. He has learned to eat anything; so much so that those of us who have watched him share with the buzzards their unholy feasts will not be quick to accept the claims of some writers that crow meat is tasty.

In winter crows gather in pine or cedar woods at night in great roosts, sometimes numbering many thousands of birds. It is likely that most of these crows in our Virginia roosts are not our native birds but crows that have come down to us from the north, while many of our birds have gone toward the deeper south.

A crow's nest is a beautifully made dwelling place. Set high up in a tree, its base is a well laid pile of sticks. On this foundation smaller sticks and roots are laid. On top is built a deep cup, firmly fashioned and well lined with fine roots and grasses, soft inner grapevine bark, and sometimes a few feathers. In this nest in early April four, sometimes five or six large bluish-green eggs, heavily marked with brown, are laid. Rarely an unmarked egg is found, and occasionally a runt egg.

When these eggs hatch out their ugly, naked black young and the cries for food resound through the patch of woods, papa and mama crow are kept on the hustle for something with which to shut these mouths and fill these stomachs. "Eat like a bird?" Indeed! A young crow demands about his weight in food each day, if he is to grow properly. At such times the crow family that lives near a highway is fortunate, when the nightly toll of rabbits and skunks and 'possums is a boon to the hard-pressed parents.



### **Audubon Screen Tours at Richmond**

The Richmond Natural History Society is again sponsoring Audubon Screen Tours in Richmond this year. On March 6, Cleveland P. Grant will present "Land of Early Autumn," a program that will show in color the wilderness areas of North America. On April 27, Emerson Scott will present colored movies covering his "Rocky Mountain Rambles." These screen tours have gained national recognition for their dramatic presentation of wildlife and natural resource conservation. Communities wishing to sponsor a series next year should contact the National Audubon Society, 1130 5th Avenue, New York 28, N. Y.

### **Floridians Protest Land-Grab— Virginians Please Note**

A mounting storm of protest has developed over further exploitation of Florida's submerged lands by private interests according to *Salt Water Sportsman* magazine. The state itself has filed suit to stop land-hungry developers from further filling of shallow coastal waters, particularly in the Boca Ciega Bay-Mullet Key area of St. Petersburg and adjacent to the causeway at Clearwater. The state has also asked all coastal counties to submit bulkhead lines in order to guide the Internal Improvement Board in considering permits for fills of bay bottom lands not intended for public use.

Spearheading a drive for protective legislation is the Florida Conservation Council. Organizations represented by the F.C.C. include the Florida Wildlife Federation, Florida Audubon Society, Florida Junior Chamber of Commerce, Florida Skindivers Association and the Florida Outdoor Writers Association.

Sam DuBon, vice-president of the 14,000-member Florida Wildlife Federation, was one of many who expressed grave concern for "massively scaled statewide land grab and fill-in projects, which are destroying or seriously damaging much of coastal Florida's most picturesque and valuable recreation areas."

Once beautiful Boca Ciega Bay at St. Petersburg, which is now almost solidly filled in by commercial development projects, is cited by most observers as a glaring example of what is happening to Florida's marginal lands.



"Wow! Did you see the monster I got away from?"

### **Wildlife Exhibit Popular**

The Thalheimer-Virginia Wildlife Exhibit at Maymont Park in Richmond was visited by more than 43,500 persons during its first month of operation. According to Norman Hood, recreation supervisor, the exhibits of raccoon, opossum, fox, skunk and waterfowl are proving very popular with Richmond school children who are taking guided tours as part of their classwork. Plans are going ahead for exhibits of deer, mink, otter and beaver.

### **Philip Keyser Wins Culpeper FFA Wildlife Food Patch Contest**

Philip Keyser was named first place winner in Culpeper's Future Farmers of America wildlife food patch contest sponsored by the Culpeper Game and Fish Protective Association. Philip received a 12-gauge shotgun; Charlie Mills, hunting pants; Jim Haught, shotgun shells; Alton Wolfrey, hunting vest; Charles Harlow, gun cleaning set; and Jack Kennedy, hunter's gloves.

The boys planted three pounds of annual bird seed mixture which they received from the game warden, Harman Robson, free of charge. Each boy participating in the competition seeded his wildlife plot in May so the seeds would have time to mature through the summer.

The boys' patches were judged on the basis of germination, competition from weeds, seed production, location of planting, and size of the patch by Howard Sheldon, district game biologist.

### **Clark Named Commissioner in Kentucky**

Minor Clark, 45, has been named commissioner of the Kentucky Department of Fish and Wildlife Resources, replacing Earl Wallace, who has been in ill health. Wallace, long-time commissioner and conservation worker, has been retained by the department as an editorial advisor. Clark, acting commissioner for six months, is a native Kentuckian who received his education at Eastern State College and the University of Kentucky, graduating from the latter institution with a master's degree in fish management. He joined the department in 1937 and, after military service during World War II, directed its fisheries work. He became assistant commissioner in 1953.



### **Whooping Cranes Show Increase**

A late report from the U. S. Fish and Wildlife Service states that there are 32 whooping cranes on their wintering ground, the Aransas National Wildlife Refuge in coastal Texas. The group consists of 23 adults and nine young. Twenty-six adults migrated northward in the spring, therefore, three of the birds are unaccounted for. By counting the six whoopers in captivity the Service says the total known in existence is 38, the highest number since record keeping began two decades ago. The largest previous count was 34 whoopers with two in captivity in 1949-50.

### **1959-60 Federal Duck Stamp Design Selected**

A black and white wash drawing featuring a Labrador retriever carrying a mallard drake has been chosen as the design for the 1959-60 Migratory Bird Hunting Stamp, Assistant Secretary of the Interior Ross Leffler an-

nounced today.

Maynard Reece, 3405 - 50th Street, Des Moines, Iowa, is the artist who drew the winning design for the tenth annual "duck stamp" competition. Mr. Reece is the first three-time winner of the annual contest. Designs submitted by Mr. Reece were selected for the 1948-49 and the 1951-52 stamps.

This will be the 26th stamp to be issued in the Federal duck stamp series. The first stamp went on sale in 1934. The 1959-60 stamp will be the first of the \$3 series, as authorized by Public Law 85-585.

A new duck stamp is issued each year by the Post Office Department which is in charge of its distribution and sale. It goes on sale on July 1, and expires on the following June 30. Every individual who has attained the age of 16 years and who hunts migratory waterfowl is required to have on his person a stamp of current issue with his signature written across the

face. This stamp is required in addition to a State hunting license.

### **Kelley Named Director of Alabama Conservation Department**

Governor-Elect John Patterson of Alabama announced that upon his inauguration January 19, 1959, Claude D. Kelley, of Atmore, would serve in his cabinet as director of the Alabama Department of Conservation.

The Alabama Department of Conservation consists of the divisions of Game and Fish, Forestry, Parks, State Lands and Sea Foods.

Kelley, executive officer of an Atmore oil company, has served as the non-salaried president of the National Wildlife Foundation for nine consecutive years.

When Kelley became president in 1950, the Federation had 33 affiliate groups. Under his leadership, the organization now is composed of 50 affiliates in 48 states, Hawaii and the District of Columbia.

## *Commission Personalities*



**George  
Washington  
District  
Supervisor**

ROBERT STUART PURKS, supervising game warden of the George Washington District, joined the Virginia Commission of Game and Inland Fisheries February 21, 1938, as game warden for Stafford and King George Counties. Born in King George County, Virginia, on September 8, 1914, "Stu" farmed for several years and served as timekeeper with the state highway department before becoming a game warden. On October 1, 1955, he was promoted to game warden supervisor to fill the vacancy left by the death of William Edward Ware.

A graduate of King George high school, Mr. Purks also attended Fork Union Military Academy for one year. In 1935, he married the former Alma

Kendall of Fredericksburg. Mr. and Mrs. Purks, who now live in Fredericksburg, have one son, Kendall, who is married and also resides at Fredericksburg, and one grandson.

The George Washington District supervisor is in charge of game, fish and dog law enforcement in Essex, Mathews, King George, King and Queen, King William, Loudoun, Louisa, Middlesex, Spotsylvania and Stafford Counties and of game and fish law enforcement only in Caroline, Culpeper, Fairfax, Fauquier, Gloucester, Hanover, Lancaster, Northumberland, Prince William, Richmond and Westmoreland Counties. These latter counties have taken advantage of the new state law permitting counties to hire special dog wardens to take over the enforcement of the dog laws.

Purks can contact 14 of his 21 wardens and two game patrolmen by radio. These men patrol such popular hunting areas as Camp A. P. Hill in Caroline County, where deer are abundant, and the marshy estuaries of the Pamunkey, Mattaponi, Rappahannock

and Potomac Rivers, where puddle ducks and geese provide good shooting. They also see that fishing regulations are observed on these rivers as well as on such popular bodies of water as Lake Jackson in Prince William County and Lake Brittle in Fauquier County.

Purks is the Commission's youngest enforcement officer for length of service, having spent 21 of his 44 years with the law enforcement division. During these years he has noted a decrease in waterfowl hunting and an increase in the deer population in his area. His biggest problems, trespass and spotlighting of deer; his greatest accomplishment, the creation of a public awareness of hunting regulations and general conservation practices.

Purks is a member of the Potomac Baptist Church of King George County and also belongs to the B. P. O. Elks 875 of Fredericksburg, the Knights of Pythias, the Fredericksburg Chapter of the Izaak Walton League of America, the Stafford Lions and the Fal-mouth Volunteer Fire Department.



## YOUTH AFIELD



### CONSERVATION POSTAGE STAMP

On October 27, 1958, the first United States postage stamp publicizing forest conservation was issued at Tucson, Arizona. Of four cent denomination, the new forest stamp is printed in yellow, brown, and green, and depicts in vertical format the major forest conservation features—wise use of timber, watershed protection, and homes and shelter for wildlife.

Appropriately, the stamp was issued on the day of the 100th anniversary of the birth of President Theodore Roosevelt, during whose administration nearly 150 million acres of public domain were introduced into our National Forest system.

### BOY SCOUTS BUILD BIRD FEEDERS

Boy Scout Troop 56 of Blacksburg, under the leadership of Dr. N. F. Murphy, is conducting a bird feeder contest. The scouts are all building the same model feeder and the finished products are to be judged. Everyone completing the construction of a feeder will receive a prize and the winner of the contest will receive a free subscription to VIRGINIA WILDLIFE magazine.

### GIRL SCOUTS SEE FIRE TOWER

The Pearisburg Girl Scouts, under the direction of Mrs. C. R. Richard, went all out for their conservation badges last fall.

One of the requirements for the badge is a trip to a fire tower. Mrs. Richard contacted the Giles County Game Warden, Bill Jamison of Pembroke, and arranged to have Mr. Jamison take the troop to a nearby fire tower on Butt Mountain.

The group of nine girls piled into the Richard station wagon and Warden Jamison's car and drove over muddy and snowy roads to the top of the mountain. The little group then mounted the tower and climbed to the top in a high wind.



Commission photo by Harrison  
Giles County Game Warden Bill Jamison shows  
Pearisburg girl scouts landmark from top of Butt  
Mountain fire tower.

Inside the tower, Jamison explained how the equipment is used in spotting fires and how the lookouts in different towers work together to pinpoint a fire.

Jamison also helped the scouts answer a number of other questions required for the badge. Some of these questions included: What birds are protected? What furbearing animals are protected? What plants should and should not be picked? How do

all living things depend upon each other to survive? What can a Girl Scout do to prevent forest fires?

### GOOD BOOKS

If you are a "bird watcher" or in any way interested in birds, you will probably enjoy reading *Look For A Birds Nest* by Robert Scharff. This is a bird book about bird's nests. It tells us about their habits, how they build their nests and what they use to construct them. Included in this little book are descriptions on more than 60 birds and their nests. G. P. Putnam's Sons, 91 pgs., Illust., \$2.75, ages 10-up.

Gifford Pinchot's fight to save America's timberlands led to the establishment of the United States Forest Service and the first conservation program in our history. The book *Gifford Pinchot* is the biography of this man by Dale White. The author creates a vital portrait of a young and selfless crusader whose vision was as vast as the land he loved. Julian Messner, Inc., 186 pgs., \$2.95, ages 12-up.

Hibernation is a fantastic phenomenon. For an interesting account and fascinating interest, read Will Barker's new book *Winter Sleeping Wildlife*. Barker goes into the life cycles, mating habits and physical differences of many of our hibernating creatures. Harper & Brothers, 133 pgs., illust., \$3.00, ages 12-up.

Conservation of our natural resources is becoming more important every day. Dorothy Childs Hogner has written a book, *Conservation in America*, which deals with the history of the conservation movement and present-day activities in this field. The book relates the struggles of man to save some of the now extinct and rare birds and animals in America. J. B. Lippincott Co., 224 pgs., \$3.75, ages 13-up.



"We'll replace the faulty line, of course, but I'm afraid there's really nothing we can do about the fish."



# Collect Tracks with Plaster of Paris

By JOHN H. McLAUGHLIN, Supervising Biologist

One of the most interesting and worthwhile hobbies of the outdoors is that of collecting animal tracks. By carefully noting and examining wildlife tracks, much can be learned about animal habits. Here is how to permanently preserve distinct tracks found in mud or clay:

Clean out the loose debris that has fallen into the impression. Encircle the track with a one and one-half inch band of cardboard held together with a paper clip. Then prepare a simple mixture of plaster of Paris and water and pour it into the form. Allow plaster to harden for about 15 minutes before lifting out of the track. Scrape and wash off all dirt and debris. Smooth base of the track with a knife and trim the outline of the track in order to make it as distinct as possible. Allow plaster to dry for a couple of days before coating both the base and track with shellac. Paint base white and track black or any desired combination of colors.

Commission photos by Harrison



Allow plaster to set for about 15 minutes before removing it from the impression.



Remove all dirt and debris from track before pouring plaster of Paris into impression.



Scrape off all dirt and rough spots with a knife. Shape outline of the track in order to make it more distinct.

A simple mixture of plaster of Paris and water is prepared and poured into track surrounded by a cardboard form.



After the tracks have been shellacked and painted, they make excellent wall plaques, ash trays, book ends and conversation pieces.





# Virginia's WILD TURKEY NEEDS HELP!

THESE MAJESTIC BIRDS ARE DISAPPEARING FROM SOUTHEASTERN VIRGINIA. HERE'S WHY:



Increased population, resulting in heavier hunting pressure.

Spreading urbanization, reducing the acreage of wild areas.



D. RAY

Destruction of mature forests, robbing the turkey of its required habitat.



Poaching, taking advantage of the birds at night and out-of-season.